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L29: Entry 5 of 5   File: USPT   Nov 27, 1990

DOCUMENT-IDENTIFIER: US 4974156 A
TITLE: Multi-level peripheral data storage hierarchy with independent access to all levels of the hierarchy

Current US Cross Reference Classification (1):
711/114

CLAIMS:

1. An improved peripheral data storage hierarchy for storing named data objects and having a plurality of storage levels, a first one of said levels being a top level having access characteristics faster than any other level, a second one of said levels being a bottom level and having access characteristics slower than any other level, and including a level intermediate said top and bottom levels having access characteristics intermediate to that of said faster and slower access characteristics;

the improvement including, in combination:

processor means for providing a store and a retrieve instruction;

input means for supplying named data objects to be stored in a sequence of said named data objects;

management means in said processor means, coupled for receiving the store and retrieve instructions and coupled to said input means an having a separate independent access path to each of said levels for independently accessing at least one of said levels according to predetermined rules for initially storing said named data objects by making copies of said named data objects to said top level, said management means making primary and backup copies of selected ones of said named data objects for storage in said intermediate and bottom levels, respectively, upon receiving the store instruction, said management means further retrieving a predetermined one of said first, primary or backup copies of said named data objects from one of said levels having fastest access characteristics and containing a copy of said named data object upon receiving a retrieve instruction; and

catalog means coupled to said management means for retentively storing as instructed from said management means an entry for each of the named data objects stored in said data storage hierarchy, each entry including a name of one named data object of said named data objects, a number of said levels containing copies of said one named data object and a storage location for each copy of said one named data object in said levels.

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L29: Entry 2 of 5   File: USPT   Oct 3, 2000

DOCUMENT-IDENTIFIER: US 6128717 A
TITLE: Method and apparatus for storage application programming interface for
digital mass storage and retrieval based upon data object type or size and
characteristics of the data storage device

Detailed Description Text (12):
In a SAPI "one-to-many" mapping example shown in FIG. 4, the SAPI engine 16
determines that a single data object n (or page n, record n, file n, etc.) is
frequently read back to the host. For example, n may be a data unit, record or file
implementing a graphical user interface (GUI) web page within an Internet server
and has a characteristic of being written once and read back hundreds, if not
thousands, of times by the host before ever being rewritten. This characteristic of
data object n of being "read frequently" is taken into account by the SAPI engine
16. Depending upon availability and location of storage space on the disks 30, the
SAPI engine 16 may store one or more copies of the data object n in an outermost
zone A of a storage disk 30, and may store other copies of data object n at other
locations on the storage disks 30 so as to minimize rotational, seek and head
switch latencies associated with particular real drive 10 (see discussion of FIG. 9
hereinafter).

Detailed Description Text (14):
As a further example set forth in FIG. 4, a different data object k may have a data
type or characteristic of being "used infrequently". That is to say, data object k
may be frequently written to disk, but rarely, if ever, read back to the host. For
example, data object k may be a log which records the dates and times that host is
actively performing some application or task. Data object k is therefore an
excellent candidate for storage in a low bandwidth, low transfer rate zone, such as
on a track within radially innermost zone E of disk 30 as shown in FIG. 3. In this
case, SAPI engine 16 maps object k to a single physical storage address in radially
innermost data zone E.

Current US Cross Reference Classification (2):
710/5

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L20: Entry 4 of 7   File: USPT   Jun 26, 2001

DOCUMENT-IDENTIFIER: US 6253240 B1
** See image for **Certificate of Correction** **
TITLE: Method for producing a coherent view of storage network by a storage network
manager using data storage device configuration obtained from data storage devices

CLAIMS:

10. The method for monitoring a storage network of claim 1, further comprising the
step of:

(d) obtaining information from a rules file stored. locally to said storage network
manager, said information comprising device characteristics.

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L1: Entry 3 of 13   File: USPT   Sep 24, 2002

DOCUMENT-IDENTIFIER: US 6457139 B1
TITLE: Method and apparatus for providing a host computer with information relating
to the mapping of logical volumes within an intelligent storage system

Detailed Description Text (41):
It should be appreciated that the three above-discussed examples are provided
merely for illustrative purposes, and that the embodiment of the present invention
relating to providing the host computer 1 with information relating to the mapping
of the logical volumes to particular physical storage devices is not limited to the
above-described examples, as numerous other implementations are possible. It should
further be appreciated that this aspect of the present invention can be implemented
in any of numerous ways, and that the present invention is not limited to any
particular manner of implementation. For example, an application programming
interface can be defined between the host computer 1 and the storage system 3 that
enables the host computer 1 to provide a request to the storage system 3 for
information relating to the physical mapping for a particular logical volume, as
well as information relating to certain characteristics of the physical device(s)
on which the logical volume is stored. This information can be used by various
portions of the host computer 1 (e.g., the file system/logical volume mapping layer
23 of FIG. 2) to configure data amongst the logical volumes defined by the host
computer 1 in a manner that will maximize system performance once those logical
volumes are mapped to the physical layer within the storage system 3. Thus, using
the information provided by the storage system 3, the host computer 1 can make more
intelligent mapping decisions that will improve the overall performance of the
computer system.

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L6: Entry 1 of 14   File: USPT   Mar 2, 2004

DOCUMENT-IDENTIFIER: US 6701379 B1
TITLE: Method and apparatus for identifying a networked client modem

CLAIMS:

12. A method as recited in claim 8, wherein if a match is determined, the analysis result based upon the comparing includes a characteristic of the device, wherein the device characteristic is based on the characteristic of the known device associated with the pre-stored value that is equivalent to the identified value.

22. A computer readable medium as recited in claim 21, wherein the program instructions for comparing include: program instructions for determining a match when the identified value is equivalent to the pre-stored value; and program instructions for producing the analysis result to include a characteristic of the device based on the characteristic of the known device associated with the pre-stored value that is equivalent to the identified value.

51. A computer-readable medium as recited in claim 47, wherein if a match is determined, the analysis result based upon the comparing includes a characteristic of the device, wherein the device characteristic is based on the characteristic of the known device associated with the pre-stored value that is equivalent to the identified value.

62. An apparatus as recited in claim 58, wherein if a match is determined, the analysis result based upon the comparing includes a characteristic of the device, wherein the device characteristic is based on the characteristic of the known device associated with the pre-stored value that is equivalent to the identified value.

73. An apparatus as recited in claim 69, wherein if a match is determined, the analysis result based upon the comparing includes a characteristic of the device, wherein the device characteristic is based on the characteristic of the known device associated with the pre-stored value that is equivalent to the identified value.

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L6: Entry 3 of 14   File: USPT   Jun 18, 2002

DOCUMENT-IDENTIFIER: US 6408330 B1
TITLE: Remote data collecting and address providing method and apparatus

Detailed Description Text (77):
Second, while other systems for identifying personnel via fingerprint or other
biometric indicia are prevalent in the prior art, many such systems require that
users "give up" control of their indicia by providing the indicia to a system
administrator. For example, a security system for restricting access to an office
building may include a security server and a plurality of fingerprint pads located
at building entrances and perhaps at other doors located throughout the building.
The security server has access to a memory storage device where fingerprint
characteristics corresponding to each person who has authority to access the
building are stored. To enter a building, a person places her thumb on a pad, the
pad discerns fingerprint characteristics which are provided to the server and the
server compares the characteristics to all sets of fingerprint characteristics
which correspond to personnel who have authority to access the building through the
specific door. Where discerned characteristics match a stored characteristic set,
the building allows entry. If the discerned and stored characteristics do not
match, the building restricts entry.

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L6: Entry 6 of 14   File: USPT   Sep 6, 1994

DOCUMENT-IDENTIFIER: US 5345584 A
TITLE: System for managing data storage based on vector-summed size-frequency
vectors for data sets, devices, and residual storage on devices

<u>Detailed Description Text</u> (52):
ⁿFurthermore the storage system manager 102 provides a means for reading the action
flag and storage characteristic or each data collection, and if the action flag
indicates the data collection is to be moved, a means is provided to <u>compare</u> the
data <u>storage characteristic to the device pending residual storage characteristic</u>
<u>of each of the storage devices</u>. When a <u>match</u> is achieved, a means is provided to
calculate a new pending device composite storage characteristic and to record that
information. Additionally a means is provided to record the device I.D. as the
target volume I.D. for the data collection.

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L1: Entry 1 of 13   File: USPT   Jun 3, 2003

DOCUMENT-IDENTIFIER: US 6572384 B1
TITLE: Method and apparatus for interconnecting circuit cards

Detailed Description Text (16):
Thus, the storage device 50 may contain enumeration data for the riser card 10
itself and all of the peripheral devices 24-48 located on the riser card 10.
Additionally, the storage device 50, if so desired, can contain the size of the
memory on the storage device 50, the allocation of data, and a checksum for self-
testing. Consequently, if an enumeration entry exists, the entry preferably matches
the physical and logical characteristics of the storage device 50.